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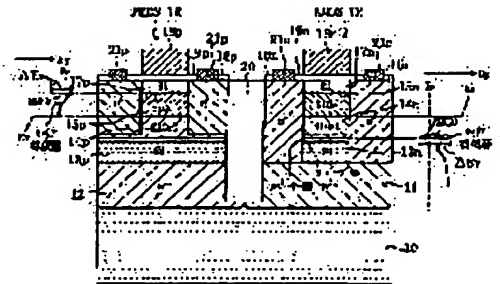
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(54) SEMICONDUCTOR DEVICE AND ITS MANUFACTURE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a semiconductor device which is provided with a field effect transistor equipped with a channel having high carrier mobility and little crystal defect.

SOLUTION: In an NMOS transistor provided on an Si substrate 10, an Si layer 13n and an SiGeC layer 14n are formed. A carrier accumulating layer is formed by utilizing the discontinuous section of a conduction band existing on the hetero-interface between the layers 14n and 13n and works as a channel through which electrons transit. Since the SiGeC layer 14n has electron mobility higher than that of silicon, the operating speed of the NMOS transistor becomes faster. The hole transiting channel of a PMOS transistor is formed by utilizing the discontinuous section of a valence band produced on the interface between an SiGe layer 15p and an Si layer 17p. Since the hole mobility of the SiGe layer 15p is higher than that of the Si layer 17p, the operating speed of the PMOS transistor also becomes faster.



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